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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/785,458	02/23/2004	Hans Henrik Bostrom	CISCO-8384	8563

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LEWIS AND ROCA LLP
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EXAMINER

NG, CHRISTINE Y

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2616

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/785,458	Applicant(s) BOSTROM ET AL.	
	Examiner CHRISTINE NG	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 March 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1 (lines 10-14), claim 15 (lines 11-15) and claim 29 (lines 10-15): It is unclear what is meant by "...characterized that the computer network preserves a connection from the first computer to the second computer *without terminating the connection at the inbound edge of the computer network*, the packets conforming to protocols in the plurality of transmission". It is unclear why it is claimed that the connection can be maintained "*without terminating the connection at the inbound edge of the computer network*", since there must be a connection at the inbound edge of the computer network in order to maintain a connection. It is also unclear what is meant by "*inbound edge of the computer network*" and where this is located.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 6-8, 12-15, 20-22 and 26-29 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,501,749 to Alexander Jr. et al.

Referring to claims 1, 15 and 29, Alexander Jr. et al disclose in Figures 1 and 2 a method of providing data transmission across a computer network, the method comprising:

Creating a link aggregation comprising plurality of tunnels (link aggregation 20) across a computer network to connect a first computer (devices 26, 28 or 30 via host 22) to a second computer (devices 32, 34 or 36 via host 24), the plurality of tunnels including a tunnel for each link (40) in the link aggregation, said link aggregation capable of simultaneously supporting a plurality of transmission protocols (k links in link aggregation 20 may be utilized with a plurality of networking protocols; Column 4, lines 6-9). Refer to Column 3, line 37 to Column 4, line 9.

Connecting a first computer (devices 26, 28 or 30 via host 22) at a first site with a second computer (devices 32, 34 or 36 via host 24) at a second site; the connection made via the computer network. Refer to Column 3, line 37 to Column 4, line 9.

Transmitting packets end-to-end from the first computer to the second computer in a manner characterized that the computer network preserves a connection from the first computer to the second computer without terminating the connection at the inbound edge of the computer network, the packets conforming to protocols in the plurality of transmission. As shown in Figure 4, a connection is maintained at the inbound edge of the computer network since data frames enter through port 402 and are transmitted through link aggregation 403. The connection at the inbound edge is maintained

because link aggregation 403 must determine which link 408-411 to send data through. Refer to Column 4, line 24 to Column 5, line 18.

Referring to claims 6 and 20, Alexander Jr. et al disclose in Figures 4 and 5 monitoring the computer network to detect multipoint protocol tunneling. Link aggregation 403 in switch 401 prevents multi-destination data frames from being sent on the wrong links 408-411 by determining whether the address of the data frame matches the physical interface of the link. Refer to Column 4, line 24 to Column 5, line 18. The claim does not specifically define multipoint protocol tunneling, so this process reads on multipoint protocol tunneling, since the process determines which links to send multi-destination data frames through.

Referring to claims 7 and 21, Alexander Jr. et al disclose in Figures 4 and 5 wherein the monitoring is performed on a per-interface basis (per link aggregation 403). The link aggregation 403 determines which link 408-411 to send data through depending on the address of the data frame. Refer to Column 4, line 46 to Column 5, line 18.

Referring to claims 8 and 22, Alexander Jr. et al disclose in Figures 4 and 5 wherein the monitoring is performed by examining a source media access control address on a transmitted protocol data unit. Refer to Column 2, lines 30-40; and Column 4, lines 59-67.

Referring to claims 12 and 26, Alexander Jr. et al disclose in Figures 4 and 5 wherein a report (result of trunk group distribution algorithm) is generated upon detection of multipoint protocol tunneling. The link aggregation 403 runs a trunk group

distribution algorithm to determine through which link 408-411 to send data through.

Refer to Column 4, line 46 to Column 5, line 18.

Referring to claims 13 and 27, Alexander Jr. et al disclose in Figures 4 and 5 wherein multipoint protocol tunneling is performed on a per-protocol basis. The links in a link aggregation may be utilized with a plurality of networking protocols (Column 4, lines 6-9). Therefore, if each link in the link aggregation 403 utilizes a different protocol, multipoint protocol tunneling is performed on a per-protocol basis, since the link aggregation 403 determines which link 408-411 to send data through depending on the address of the data frame. Refer to Column 4, line 46 to Column 5, line 18.

Referring to claims 14 and 28, Alexander Jr. et al disclose in Figures 4 and 5 wherein multipoint protocol tunneling is performed on a per-port basis (per link 408-411 in link aggregation 403). The link aggregation 403 determines which link 408-411 to send data through depending on the address of the data frame. Refer to Column 4, line 46 to Column 5, line 18.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,501,749 to Alexander Jr. et al in view of U.S. Patent No. 6,910,149 to Perloff et al.

Alexander Jr. et al do not disclose wherein the plurality of transmission protocols comprises LACP protocol, and packets are transmitted in accordance with the LACP protocol to perform Ethernet loadsharing across multiple links.

Perloff et al disclose that the LACP protocol defines standards on how links in link aggregation can load share and load balance, and how to provide for automatic redundancy in case of link failure. Refer to Column 1, line 55 to Column 2, line 41; and Column 5, lines 42-67. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include wherein the plurality of transmission protocols comprises LACP protocol, and packets are transmitted in accordance with the LACP protocol to perform Ethernet loadsharing across multiple links. One would have been motivated to do so to provide a protocol to control the load sharing and load balancing of link in link aggregation.

7. Claims 3, 4 17 and 18 are rejected under 35 U.S.C. 103(a) as being obvious over U.S. Patent No. 6,501,749 to Alexander Jr. et al in view of U.S. Patent No. 7,061,875 to Portolani et al.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed

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in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(I)(1) and § 706.02(I)(2).

Referring to claims 3 and 17, Alexander Jr. et al do not disclose wherein the plurality of transmission protocols comprises PAgP protocol, and packets are transmitted in accordance with the PAgP protocol to perform Ethernet loadsharing across multiple links.

Portolani et al disclose that the PAgP protocol aggregates a plurality of physical ports into a single, logical aggregation port. This allows for load sharing as different ports can share the transmission and reception of data since they are one logical port. Refer to Column 12, lines 13-32. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include wherein the plurality of transmission protocols comprises PAgP protocol, and packets are transmitted in accordance with the PAgP protocol to perform Ethernet loadsharing across multiple links. One would have been motivated to do so to load balance data among different ports, which prevents congestion and overflow on one particular port.

Referring to claims 4 and 18, Alexander Jr. et al do not disclose wherein the plurality of transmission protocols comprises UDLD protocol, and packets are

transmitted in accordance with the UDLD protocol to perform unidirectional link detection.

Portolani et al disclose that the UDLD protocol determines the physical status of a link by detecting the identities of neighbors and shutting down misconnected ports. UDLD prevents physical and logical unidirectional connections. Refer to Column 12 lines 33-46. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include wherein the plurality of transmission protocols comprises UDLD protocol, and packets are transmitted in accordance with the UDLD protocol to perform unidirectional link detection. One would have been motivated to do so in order to detect unidirectional connections.

8. Claims 5 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,501,749 to Alexander Jr. et al in view of U.S. Publication No. 2006/0067317 to Engstrand et al.

Alexander Jr. et al do not disclose wherein a unique ISP access VLAN is assigned to each connection between corresponding Etherchannel ports.

Engstrand et al disclose that each VLAN is assigned a VLAN identifier or VLAN tag for uniquely identifying the VLAN within a LAN. Also, a VLAN can be connected to an ISP. The same address of an ISP is used for a plurality of connections that are connected to that ISP. Refer to Sections 0002 and 0012. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include wherein a unique ISP access VLAN is assigned to each connection between

corresponding Etherchannel ports. One would have been motivated to do so to unique identify each connection.

9. Claims 9-11 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,501,749 to Alexander Jr. et al in view of U.S. Patent No. 5,081,621 to Sugimoto.

Referring to claims 9 and 23, Alexander Jr. et al disclose wherein the source media access control address is recorded as a multipoint protocol tunneling reference. Refer to the rejection of claims 6 and 20 and the rejection of claims 8 and 22.

However, Alexander Jr. et al do not disclose an aging timer is set to a minimum time that is longer than a longest expected transmission time for the transmitted protocol data unit.

Sugimoto discloses in Figure 3 a system with monitoring timers 14-1 to 14-4 which have a slightly longer timing than a transmission time in a maximum transmission route in the network for packets. Refer to Column 5, lines 7-10. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include an aging timer is set to a minimum time that is longer than a longest expected transmission time for the transmitted protocol data unit. One would have been motivated to do so in order to set the timer to account for the data unit requiring the longest transmission time.

Referring to claims 10 and 24, Alexander Jr. et al do not disclose wherein, before expiration of the aging timer, all packets arriving with a source media access control address other than the reference are dropped.

Sugimoto discloses in Figure 3 a system with monitoring timers 14-1 to 14-4 which have a slightly longer timing than a transmission time in a maximum transmission route in the network for packets. Refer to Column 5, lines 7-10. Although Sugimoto do not specifically disclose dropping packets with a different address before expiration of the timer, by setting the timers 14-1 to 14-4 to a time longer than the maximum transmission time, this allows the packet with the expected address to be received. All other packets with addresses other than the expected address can be dropped. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include wherein, before expiration of the aging timer, all packets arriving with a source media access control address other than the reference are dropped. One would have been motivated to do so to allow time for particular packets to be received.

Referring to claims 11 and 25, Alexander Jr. et al do not disclose wherein, after expiration of the aging timer, the first packet arriving after expiration of the aging timer provides its source media access control address as the next multipoint protocol tunneling reference.

Sugimoto discloses in Figure 3 a system with monitoring timers 14-1 to 14-4 which have a slightly longer timing than a transmission time in a maximum transmission route in the network for packets. Refer to Column 5, lines 7-10. Although Sugimoto do not specifically disclose that the first packet arriving after expiration of the aging timer provides its source media access control address as the next multipoint protocol tunneling reference, by setting the timers 14-1 to 14-4 to a time longer than the

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maximum transmission time, this allows the packet with the expected address to be received. After the packet with the expected address is received, the system can await for a packet with a new address. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include wherein, after expiration of the aging timer, the first packet arriving after expiration of the aging timer provides its source media access control address as the next multipoint protocol tunneling reference. One would have been motivated to do so to allow time for particular packets to be received and then receive other packets.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTINE NG whose telephone number is (571)272-3124. The examiner can normally be reached on M-F; 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Firmin Backer can be reached on (571) 272-6703. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

C. Ng
May 27, 2008

/FIRMIN BACKER/
Supervisory Patent Examiner, Art Unit 2616